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The emergence of carbapenem resistance in ESBL-producing *Escherirchia coli* O25B-ST131 strain from community acquired infection in Kuwait

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Introduction / objectives

In this study we investigated a multi-drug resistant *E.coli* recovered from ascetic fluid of a haemodialysis patient with community-onset urinary tract infection from Al-Amiri hospital in Kuwait. The patient was suffering from advanced liver disease with portal hypertension and multiple current inter abdominal abscesses.

Methods

Antimicrobial susceptibility was determined by Vitek2, Microscan, disc diffusion, E-test & double disc method against antibiotics. PCR& sequencing were performed forO25pabBspe,*pabB*, *trpA*, *chuA*, *yjaA* TSPE4, *bla*SHV, *bla*TEM, *bla*CTX-M15, $bla_{\text{OXA-1-like}}$, *aac*(6′)-*Ib-cr*, *tet* (A), *tet*(B), *gyr*A, *par*C, plasmid mediated *qnr*A, *qnr*B, *qnr*S, IMP, SPM, VIM, OXA-48, NDM, KPC and classes 1and 2 integrons.

Results

The isolate was confirmed as *E. coli* O25b-sequence type (ST) 131 clone of B2 phylogenetic group. The isolate was resistant to all antibiotics tested except sulfamethoxazole, trimethoprim and nitrofurantoin and E-test confirmed that it is highly resistant to meropenem, imipenem, ciprofloxacin, cefotaxime and ceftazidime with MIC values of >16 mg/l, 32 mg/l, >64 mg/l, 32 mg/l & >32mg/l respectively. PCR detected the expected sizes of the amplified resistance genes, and DNA sequencing confirmed that TEM-1, the novel SHV-122 GeneBank (GQ290211), CTX-M-15, OXA-1, variant *aac* (6′)-*Ib-cr*, *tet*(A) genes, VIM and KPC were present and it was found to carry a class 1 integron. No mutation was found in *gyr*A but in ParC a mutation at 520 G to C, with amino acid change 174 Val (GTC) to Leu (CTC) was detected. QnrA, B, S and integron 2 were not present.

Conclusion

This is the first report of the emergence and the detection of a multiple antibiotic resistant *E. coli* O25b-sequence type (ST)131 containing 2 carbapenemase genes in Kuwait.

Disclosure of interest

None declared.

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